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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,156	03/15/2001	Stephen L. James	M4065.0372/P372	3048

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DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L STREET NW
WASHINGTON, DC 20037-1526

EXAMINER
NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 03/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/808,156	JAMES, STEPHEN L.	
	Examiner	Art Unit	
	Jeremy Norris	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *23-29* is/are allowed.

6)☒ Claim(s) *1-5,8-16,19-22 and 30-40* is/are rejected.

7)☒ Claim(s) *6,7,17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

The drawings are objected to because the sectional views are not properly crosshatched (see MPEP 608.02). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract of the disclosure is objected to because of the comparisons to the prior art (e.g. "efficient" and "better"). Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 37-40 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 37-40 all refer to "The method of claim 32". However, claim 32 is drawn to a device not a method. For purposes of examination, Examiner assumes these claims depend from claim 36 which is indeed drawn to a method.

Claim 37 recites the limitation "said third piece of tape" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 38 recites the limitation "said third piece of tape" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8-10, 30-33, 36, 39, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,789,803, granted to Kinsman (hereafter Kinsman).

Kinsman discloses, referring to figures 3A-3FF, a structure for use in a semiconductor package, said structure comprising: a first adhesive material (36)

provided between a die (10) and a circuit board (28), said first adhesive material in parallel to a length of a wirebond slot in said circuit board, said first adhesive material residing on a first side of said wirebond slot; a second adhesive material (36) provided between said die and said circuit board, said second adhesive material in parallel to said length of said wirebond slot in said circuit board; said second adhesive material residing on a second side of said wirebond slot; and a third material (not shown) provided on said circuit board and extending between said first and second materials to form a diversion dam for an encapsulation material (see col. 5, lines 40-45) [claim 1], where said first material is an adhesive tape (see col. 4, lines 40-50) [claim 2], where said adhesive tape is a double sided adhesive tape [claim 3], where said second material is an adhesive tape [claim 4], where said adhesive tape is a double sided adhesive tape [claim 5], wherein said third material is a thin layer of material applied to one or both of said die and said circuit board, at a location adapted to face an inlet for an encapsulation compound (see col. 5, lines 40-45) [claim 8], wherein said third material resides on said die [claim 9], wherein said third material resides on said circuit board [claim 10].

Kinsman also discloses a die mounting structure comprising: a die (10); a circuit board (28) containing a wirebond slot; a first piece of double side adhesive tape (36) secured between said die and said circuit board, said first piece of tape being parallel to a length of said wirebond slot, said first piece of tape residing on a first side of said wirebond slot; a second piece of double side adhesive tape (36) secured between said die and said circuit board, said second piece of tape being parallel to said length of said

wirebond slot in said circuit board; said second piece of tape residing on a second of said wirebond slot; and a thin layer of material (see col. 5, lines 40-50) provided between said first and second pieces of doubled sided adhesive tape to form an encapsulation diversion dam [claim 30], where said thin layer of material is at a location adapted to face an inlet for an encapsulation compound [claim 31], wherein said thin layer of material resides on said die [claim 32], wherein said thin layer of material resides on said circuit board [claim 33].

Moreover, Kinsman discloses a method of encapsulating a semiconductor package, said method comprising: securing a first adhesive material (36) between a die (10) and a circuit board (28), said first adhesive material extending in parallel to a length of a wirebond slot in said circuit board, said first adhesive material residing on a first side of said wirebond slot; a securing a second adhesive material (36) between said die and said circuit board, said first adhesive material extending in parallel to said length of said wirebond slot in said circuit board, said first adhesive material residing on a second side of said wirebond slot; securing a third material (not shown) between said die and said circuit board and extending between said first and second adhesive materials (see col. 5, lines 40-50); and injecting a compound (40) into a gate, said compound being directed by said third material to fill said wirebond slot last (actually, first last and only) [claim 36], wherein said step of securing said third material comprises applying a thin layer of material on said die, said thin layer of material contacting said first and second adhesive materials to form a diversion dam [claim 39], wherein said step of securing said third material comprises applying a thin layer of material on said

circuit board, said thin layer of material contacting said first and second adhesive materials to form a diversion dam [claim 40].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman in view of US 6,124,629, granted to Murakami et al (hereafter Murakami).

Kinsman discloses the claimed invention as described above except Kinsman does not specifically state that the semiconductor die is a memory die. Murakami teaches using a memory die as the semiconductor die in a lead-on-chip device (see col. 16, lines 30-35). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the memory die taught by Murakami in the invention of Kinsman. The motivation for doing so would have been to create a leaded memory device.

Claims 12-16 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman in view of Murakami and US 6,285,558, granted to Frantz et al. (hereafter Frantz).

Kinsman discloses, referring to figures 3A-3FF, a structure for use in a semiconductor package, said structure comprising: a first adhesive material (36) provided between a die (10) and a circuit board (28), said first adhesive material in

parallel to a length of a wirebond slot in said circuit board, said first adhesive material residing on a first side of said wirebond slot; a second adhesive material (36) provided between said die and said circuit board, said second adhesive material in parallel to said length of said wirebond slot in said circuit board; said second adhesive material residing on a second side of said wirebond slot; and a third material (not shown) provided on said circuit board and extending between said first and second materials to form a diversion dam for an encapsulation material (see col. 5, lines 40-45). Kinsman does not specifically state that the semiconductor die is a memory die. Murakami teaches using a memory die as the semiconductor die in a lead-on-chip device (see col. 16, lines 30-35). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the memory die taught by Murakami in the invention of Kinsman. The motivation for doing so would have been to create a leaded memory device. Moreover the invention of Kinsman, even as modified by Murakami, does not disclose a processor system comprising: a memory; and a processor coupled to said memory [claim 12]. Frantz teaches, referring to figure 5, a processor system comprising, a processor (1) coupled to a memory (10). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the memory device disclosed by the invention of Kinsman as modified by Murakami in the invention of Frantz since Kinsman teaches that the device may be coupled to a printed circuit board (see col. 3, lines 35-40). The motivation for doing so would have been to use a memory device having a foot print that is essentially the same as the unpackaged die, resulting in a more efficient use of board space. Moreover, the invention of

Kinsman as modified by Frantz and Murakami discloses that said first material is an adhesive tape [claim 13], where said adhesive tape is a double sided adhesive tape [claim 14], where said second material is an adhesive tape [claim 15], where said adhesive tape is a double sided adhesive tape [claim 16], wherein said third material is a thin layer of material applied to one or both of said die and said circuit board at a location adapted to face an inlet for an encapsulation compound [claim 19], wherein said third material resides on said die [claim 20], wherein said third material resides on said circuit board [claim 21], wherein said die is a memory die [claim 22].

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,159,764, granted to Kinsman et al. (hereafter Kinsman-2).

Kinsman discloses the claimed invention as described above except Kinsman does not specifically disclose that said die includes a processor. However, Kinsman-2 teaches an LOC device wherein the IC can include a processor (see col. 4, line 66). Therefore it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the processor taught by Kinsman-2 in the invention of Kinsman. The motivation for doing so would have been to create a leaded processor device.

Allowable Subject Matter

Claims 23-29 are allowed.

Claims 6, 7, 17, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 37 and 38 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: All of the above listed claims include the limitation that the third material must be an adhesive tape. This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7724 for regular communications and 703-305-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN
March 24, 2002

Primary Examiner